

Trend Study 1-8-01

Study site name: Mud Springs Basin.

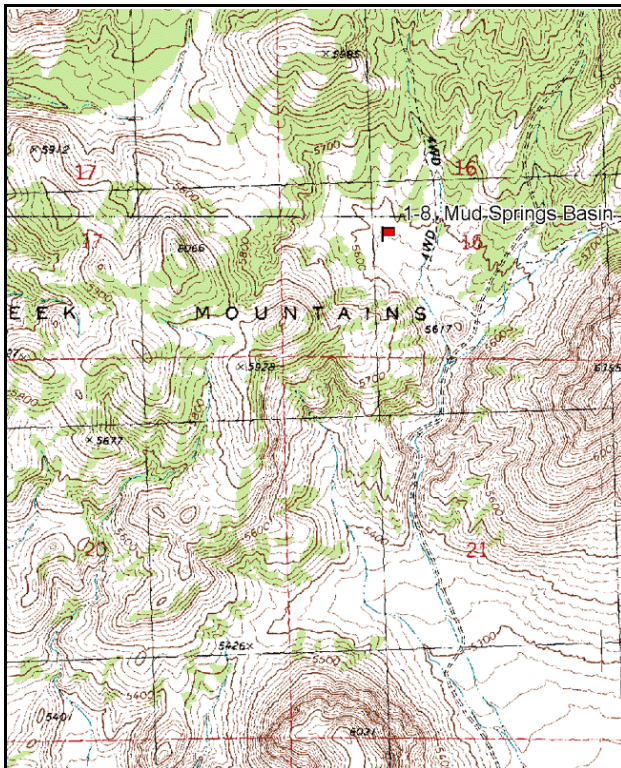
Vegetation type: Big Sagebrush-Grass.

Compass bearing: frequency baseline 180 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (71ft), line 4 (59ft).

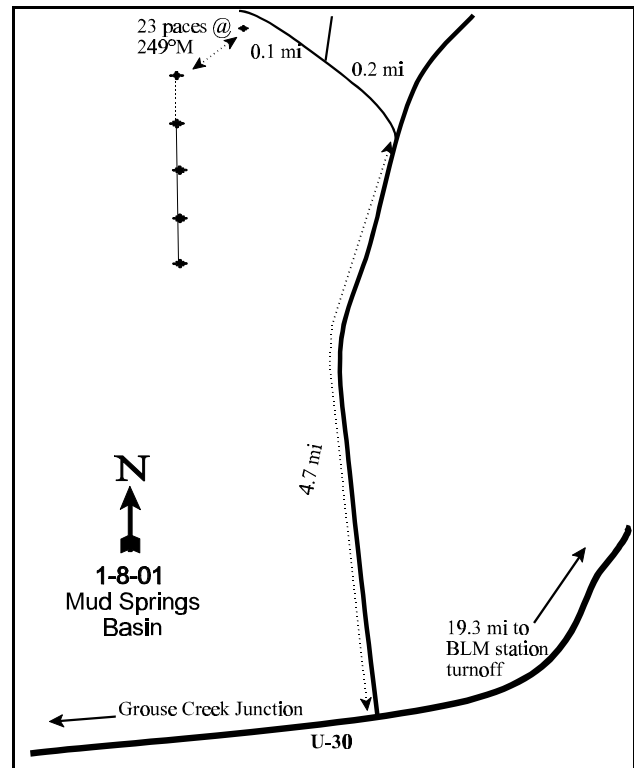
LOCATION DESCRIPTION

On U-30 proceed 19 miles southwest from the Rosebud BLM station turn-off and turn right (north) onto a gravel road just before mile marker 14. Proceed 4.7 miles and take a fork to the left for 0.2 miles. Take a very faint road to the left for 0.1 miles to a witness post on the left side of the road. From the witness post, walk 17 paces on an azimuth of 182 degrees magnetic to the 0-foot stake of the frequency baseline marked by browse tag #7913. Bearing of the baseline is 180 degrees true.



Map Name: Lucin NE

Township 9N, Range 17W, Section 16



Diagrammatic Sketch

UTM 4597734 N, 266042 E

DISCUSSION

Trend Study No. 1-8

The Mud Springs Basin trend study is located on critical deer winter range near the south end of the Grouse Creek Mountains, approximately 2 miles southwest of Mud Springs Basin. The site has an elevation of 5,600 feet and slight southwest aspect. The small basin in which the study is located contains numerous small ridges occupied by sparse fingers of juniper and black sagebrush separated by low areas (swales) occupied by the more deep rooted basin big sagebrush. The study samples a large sagebrush swale because of their obvious importance during winters with deeper snow like the winter of 1983-84. The pellet-group transect read in conjunction with the vegetative transect in 2001, estimated 29 deer days use/acre (73 deer days use/ha).

Soil is moderately deep and alluvially deposited with minimal surface rockiness. The soil has a loam texture and slightly alkaline reaction (7.8 pH). The amount of phosphorus could be a limiting factor as there is only 6.3 ppm where values less than 10 ppm have been shown to limit plant growth and development. Bare interspaces have pavement covering the surface, but the soil beneath is easily erodible. Ground cover is principally sagebrush crowns, native grasses, and cheatgrass. The ratio of bare soil to protective ground cover is fair and the erosion condition class was determined to be moderate in 2001. Most signs of erosion are from pedestalling, flow patterns, and abundant rills. The ample vegetation and litter cover combined with the lack of steep slope prevents more serious soil erosion problems. A number of small drainage channels traverse the area, however none are deep or highly active. Most appear relatively stable.

Browse composition consists mostly of Wyoming big sagebrush. Density was estimated at 5,866 in 1984. There was a considerable amount of rodent damaged plants encountered that year, yet percent decadency was still relatively low at 14%. The sagebrush stand appeared over-mature and decadent at first glance in 1984, but examination of the shrub density data suggested an age structure more typical of an expanding or regenerating population. The surviving mature and decadent plants received heavy deer use on those portions of the crown which protruded above the snow line yet vigor was not seriously depressed. Thus, the surviving plants looked ragged but nonetheless exhibited good vigor when examined in June of 1984. Population density declined 36% and percent decadency increased to 29% in 1990. Utilization was light and vigor was good on all but 50% of the decadent plants. Density continued to decline in 1996, while the number of mature plants increased from 1,400 plants/acre to 2,060. The lower density for sagebrush continues through 2001 where the population decreased from 3,240 to 2,540 plants/acre. The percentage of dead plants within the population has increased from 16% to 32%. Utilization, except for 1984, has mostly been light. Percent decadency has varied through the years, from a low of 14% in 1984 to a high of 29% in 1990. Percent decadence is currently 19%. Canopy cover of big sagebrush has gone from about 12% in 1996 to 14% in 2001.

Other shrubs, such as prickly phlox, narrowleaf low rabbitbrush, black sagebrush, and Nevada ephedra are distinctly secondary in importance. Density of narrowleaf rabbitbrush increased dramatically from 199 plants/acre to 3,300 since 1990. Some of the increase is due to the larger sample used in 1996 which better estimates shrub populations which have aggregated and/or discontinuous distributions. Currently ('01) it has shown a 42% decrease in it's population, probably the effects of prolonged drought.

Understory composition was dominated by a moderately dense stand of native perennial grasses in 1996, consisting of bluebunch wheatgrass, Indian ricegrass, Sandberg bluegrass, and bottlebrush squirreltail. These grasses produced nearly 15% cover in 1996. Currently ('01), they produce only about 11% cover. Cheatgrass brome, an annual, has increased in cover from 5% cover in the 1996, to 13% in 2001. Cheatgrass is becoming significantly more abundant. Forb diversity depends on timing and amounts of precipitation as species

numbers vary from each year it has been sampled. Species numbers have varied from a high of 29 species in 1996 to a low of only 9 species in 1990. Eighteen forb species were sampled in 2001. Nine species of annual forbs also occur on the site, combining to produce 22% of the herbaceous cover. Cheatgrass should be watched closely as it significantly increased in nested frequency and cover more than doubled since 1996.

1984 APPARENT TREND ASSESSMENT

Long term trend seems relatively stable. Although the dominant browse species suffered heavy damage in 1983-84, regeneration and recovery should occur rapidly. In this deteriorated condition, high numbers of wildlife could cause further losses to the big sagebrush population. Soil is potentially highly erodible even though the current rate of soil loss is low.

1990 TREND ASSESSMENT

Trend for soil is down due to a major increase in percent bare ground (13% to 30%). Litter cover also declined from 70% to 39%. Trend for big sagebrush is down. The number of mature plants declined from 3,066 to 1,400. Density of seedlings and young plants declined as well, but there appears to be sufficient numbers to maintain the population. Utilization of the sagebrush was light but percent decadency increased from 14% to 29%. Nearly half (44%) of the decadent plants appeared to be dying. The currently balanced age class structure, would indicate that the sagebrush population, heavily impacted by the harsh winters of the early 1980's is stabilizing. Trend for the herbaceous understory is up. All five perennial grasses increased in nested frequency and quadrat frequency values. For the forbs, a little over half had improved nested and quadrat frequency's.

TREND ASSESSMENT

soil - down (1)

browse - down (1)

herbaceous understory - up (5)

1996 TREND ASSESSMENT

Trend for soil is up slightly. Percent bare ground declined from 30% to 13%, while litter and cryptogamic cover increased slightly. Trend for the key browse species, Wyoming sagebrush, is fairly stable since 1990. Density of mature plants increased while the number of seedling and young declined. Utilization was mostly light and percent decadence fell slightly from 29% to 25%. Vigor was good on all but 28% of the decadent sagebrush which were classified as dying. One cause for concern is the increase in density of narrowleaf low rabbitbrush which rose from 199 to 3,300 plants/acre. Due to the lack of seedlings and young during previous readings, some of the increase is likely due to the increased sample size used in 1996. Trend for the herbaceous understory is stable. Sum of nested frequency of grasses declined slightly while frequency of perennial forbs increased.

TREND ASSESSMENT

soil - up slightly (4)

browse - stable (3)

herbaceous understory - stable (3)

2001 TREND ASSESSMENT

Trend for soil would be considered stable because the proportion of protective cover to bare soil has remained fairly stable. Trend for the key browse species, Wyoming sagebrush, is slightly down with continuing decreases in density, percent young have decreased from 12% down to only 3%. Percentage of decadent plants classified as dying have increased from 28% up to 67%, and percent dead within the population have also increased from 16% to 32%. Utilization was classified as mostly light. Those classified with poor vigor has increased from 7% to 13%. One cause of concern in 1996 was the increase in density of narrowleaf low rabbitbrush which rose from 199 plants/acre in 1990 to 3,300 plants/acre in 1996. Currently it has decreased by 42% to 1,900 plants/acre. Trend for the herbaceous understory is considered stable. However, even though the perennial grass component has remained stable, the forbs have decreased from making up 18% of the herbaceous cover down to only 7%. Cheatgrass has increased significantly in nested frequency, while its percent cover has more than doubled since the last reading.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - stable overall (3)

HERBACEOUS TRENDS --

Herd unit 01 , Study no: 8

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron dasystachyum	-	-	-	-	-	-	-	-	-	-
G	Agropyron smithii	_a -	_b 16	_a -	_b 30	-	5	-	13	-	.58
G	Agropyron spicatum	46	84	78	77	23	39	37	32	3.88	3.45
G	Bromus tectorum (a)	-	-	_a 154	_b 268	-	-	55	80	5.38	12.92
G	Oryzopsis hymenoides	24	27	34	35	13	13	15	17	2.56	1.57
G	Poa secunda	_a 51	_b 182	_b 176	_b 179	26	73	70	68	6.24	4.49
G	Sitanion hystrix	_b 58	_b 63	_b 57	_a 21	26	28	24	10	1.89	.45
Total for Annual Grasses		0	0	154	268	0	0	55	80	5.38	12.92
Total for Perennial Grasses		179	372	345	342	88	158	146	140	14.59	10.55
Total for Grasses		179	372	499	610	88	158	201	220	19.97	23.47
F	Agoseris glauca	1	-	-	1	1	-	-	1	-	.00
F	Alyssum alyssoides (a)	-	-	6	-	-	-	2	-	.01	-
F	Allium spp.	-	-	-	2	-	-	-	1	-	.00
F	Ambrosia artemisifolia	-	2	-	-	-	1	-	-	-	-
F	Antennaria rosea	-	-	6	4	-	-	4	3	.07	.01
F	Androsace septentrionalis (a)	-	-	-	1	-	-	-	1	-	.00
F	Arenaria spp.	-	-	-	1	-	-	-	1	-	.00
F	Astragalus beckwithii	8	-	6	3	4	-	2	1	.18	.03
F	Astragalus cibarius	_{ab} 5	_a 6	_c 32	_{bc} 18	2	2	15	11	.47	.22

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	<i>Astragalus newberryi</i>	-	-	10	-	-	-	4	-	.07	-
F	<i>Astragalus utahensis</i>	-	8	1	-	-	4	1	-	.00	-
F	<i>Balsamorhiza hookeri</i>	2	-	7	1	1	-	5	1	.30	.00
F	<i>Castilleja chromosa</i>	3	-	-	-	1	-	-	-	-	-
F	<i>Calochortus flexuosus</i>	3	-	-	-	1	-	-	-	-	-
F	<i>Camelina microcarpa</i> (a)	-	-	71	26	-	-	32	13	.18	.14
F	<i>Chaenactis douglasii</i>	-	-	1	-	-	-	1	-	.00	-
F	<i>Crepis acuminata</i>	_a 1	_b 15	_{ab} 10	_a 1	1	7	5	1	.25	.00
F	<i>Cryptantha</i> spp.	-	-	32	-	-	-	16	-	.35	-
F	<i>Descurainia pinnata</i> (a)	-	-	_a 46	_b 79	-	-	17	36	.47	.33
F	<i>Eriogonum ovalifolium</i>	-	-	1	-	-	-	1	-	.00	-
F	<i>Erigeron pumilus</i>	_a -	_a -	_b 14	_b 5	-	-	6	5	.05	.07
F	<i>Gayophytum ramosissimum</i> (a)	-	-	19	-	-	-	8	-	.04	-
F	<i>Gilia</i> spp. (a)	-	-	8	4	-	-	4	2	.02	.01
F	<i>Haplopappus acaulis</i>	_a -	_a -	_b 20	_a -	-	-	7	-	.46	-
F	<i>Halogeton glomeratus</i> (a)	-	10	-	-	-	4	-	-	-	-
F	<i>Hackelia patens</i>	_a -	_b 16	_c 71	_a -	-	8	28	-	.18	-
F	<i>Lapula occidentalis</i> (a)	-	-	29	41	-	-	13	22	.11	.13
F	<i>Macolmia africana</i>	-	-	4	-	-	-	2	-	.01	-
F	<i>Metzelia albicaulis</i> (a)	-	-	_b 21	_a -	-	-	11	-	.08	-
F	<i>Penstemon cyananthus</i>	_a -	_a -	_b 17	_a -	-	-	6	-	.05	-
F	<i>Penstemon</i> spp.	-	-	1	-	-	-	1	-	.00	-
F	<i>Phlox hoodii</i>	_a 3	_a 13	_b 54	_b 49	1	5	26	21	.72	.45
F	<i>Phlox longifolia</i>	_a 29	_b 66	_a 30	_a 37	12	28	12	18	.16	.21
F	<i>Ranunculus testiculatus</i> (a)	-	-	-	7	-	-	-	3	-	.01
F	<i>Sisymbrium altissimum</i> (a)	-	-	_b 14	_a 3	-	-	6	1	.05	.00
F	<i>Sphaeralcea grossulariaefolia</i>	3	-	-	-	1	-	-	-	-	-
F	<i>Taraxacum officinale</i>	-	-	3	-	-	-	1	-	.00	-
F	<i>Tragopogon dubius</i>	-	-	3	-	-	-	1	-	.03	-
F	Unknown forb-perennial	_a -	_b 27	_a -	_a -	-	12	-	-	-	-
F	<i>Veronica biloba</i> (a)	-	-	3	-	-	-	2	-	.01	-
Total for Annual Forbs		0	10	217	161	0	4	95	78	0.98	0.64
Total for Perennial Forbs		58	153	323	122	25	67	144	64	3.40	1.03
Total for Forbs		58	163	540	283	25	71	239	142	4.39	1.68

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 01 , Study no: 8

Type	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Artemisia nova	6	15	1.54	1.28
B	Artemisia tridentata wyomingensis	75	65	11.66	13.98
B	Chrysothamnus viscidiflorus stenophyllus	48	39	5.67	1.29
B	Juniperus osteosperma	2	1	.15	.15
B	Leptodactylon pungens	5	7	.33	.48
B	Opuntia polyacantha	0	2	.00	.03
Total for Browse		136	129	19.35	17.22

Point-Quarter Tree Data

Herd unit 01, Study no: 8

Species	Trees per Acre		Average diameter (in)	
	'96	'01	'96	'01
Juniperus osteosperma	26	52	9.8	6.7

BASIC COVER --

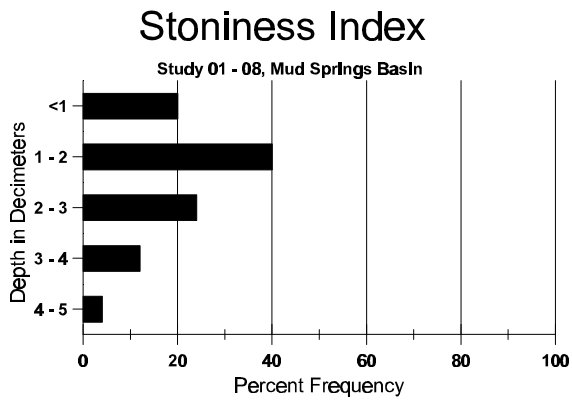
Herd unit 01 , Study no: 8

Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	342	354	2.25	7.00	47.15	42.79
Rock	170	103	1.75	1.75	3.30	1.93
Pavement	241	268	12.00	21.25	13.01	12.39
Litter	390	346	70.25	39.00	41.55	31.90
Cryptogams	66	80	1.00	1.25	1.82	2.78
Bare Ground	243	264	12.75	29.75	12.91	19.01

SOIL ANALYSIS DATA --

Herd Unit 01, Study no: 08, Mud Springs Basin

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
20.3	56.6 (19.7)	7.8	43.4	32.4	25.3	2.3	6.3	540.8	.7



PELLET GROUP FREQUENCY --

Herd unit 01 , Study no: 8

Type	Quadrat Frequency	
	'96	'01
Rabbit	10	2
Elk	-	1
Deer	53	22
Antelope	-	-

Pellet Transect	
Pellet Groups per Acre 01	Days Use per Acre (ha) 01
52	N/A
-	-
383	30 (73)
35	N/A

BROWSE CHARACTERISTICS --

Herd unit 01 , Study no: 8

Field unit 01, Study no. 8																		
A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia nova																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	1	-	-	-	-	-	-	-	-	1	-	-	20		1	
	01	2	-	-	-	-	-	-	-	-	-	2	-	-	40		2	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	1	-	3	-	-	-	-	-	-	-	4	-	-	80	8	4	
	01	23	-	-	-	-	-	-	-	-	-	23	-	-	460	7	23	
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	2	8	-	-	-	-	-	-	-	6	-	-	220		11	
	01	15	-	-	2	-	-	-	-	-	-	12	-	-	340		17	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	80		4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		19%			69%			31%			+62%							
'01		00%			00%			12%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	0%			
												'90	0		0%			
												'96	320		69%			
												'01	840		40%			

A Y G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata wyomingensis																		
S	84	380	-	-	-	-	-	-	-	-	380	-	-	-	25333		380	
	90	7	-	-	-	-	-	-	-	-	7	-	-	-	466			7
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	84	14	14	2	-	-	-	-	-	-	30	-	-	-	2000		30	
	90	18	-	-	1	-	-	-	-	-	19	-	-	-	1266			19
	96	15	-	-	4	-	-	-	-	-	19	-	-	-	380			19
	01	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
M	84	8	20	18	-	-	-	-	-	-	44	-	2	-	3066	26	34	46
	90	21	-	-	-	-	-	-	-	-	21	-	-	-	1400	22	22	21
	96	90	2	2	9	-	-	-	-	-	103	-	-	-	2060	23	37	103
	01	93	6	-	-	-	-	-	-	-	98	-	1	-	1980	22	28	99
D	84	2	3	7	-	-	-	-	-	-	8	-	1	3	800		12	
	90	16	-	-	-	-	-	-	-	-	8	-	1	7	1066			16
	96	34	3	-	3	-	-	-	-	-	29	-	-	11	800			40
	01	21	1	1	1	-	-	-	-	-	8	-	-	16	480			24
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	620			31
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	1200			60
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		42%			31%			07%			-36%							
'90		00%			00%			14%			-13%							
'96		03%			01%			07%			-22%							
'01		06%			.78%			13%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	5866	Dec:	14%			
												'90	3732		29%			
												'96	3240		25%			
												'01	2540		19%			
Atriplex canescens																		
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	0		-			
												'01	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus stenophyllus																		
S	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	14	-	-	-	-	-	-	-	-	14	-	-	-	280		14	
	01	9	-	-	-	-	-	-	-	-	9	-	-	-	180		9	
M	84	-	4	-	-	-	-	-	-	-	1	-	3	-	266	12 14	4	
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	133	10 9	2	
	96	139	-	-	8	-	-	-	-	-	147	-	-	-	2940	12 20	147	
	01	54	-	-	3	-	-	-	-	-	57	-	-	-	1140	9 14	57	
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	4	-	-	-	-	-	-	-	-	3	-	-	1	80		4	
	01	25	-	-	4	-	-	-	-	-	19	-	-	10	580		29	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	120		6	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>						<u>%Change</u>				
'84		100%			00%			75%						-25%				
'90		00%			00%			00%						+94%				
'96		00%			00%			.60%						-42%				
'01		00%			00%			11%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	266	Dec:	0%			
												'90	199		0%			
												'96	3300		2%			
												'01	1900		31%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Juniperus osteosperma																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	-	-	-	-	-	-	1	-	-	1	-	-	-	20	-	1	
	01	-	-	-	-	-	-	-	1	-	1	-	-	-	20	-	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%			-50%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	40		-			
												'01	20		-			
Leptodactylon pungens																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	3	-	-	1	-	-	-	-	-	4	-	-	-	80	5 11	4	
	01	10	-	-	3	-	-	1	-	-	14	-	-	-	280	6 7	14	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%			+64%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	100		-			
												'01	280		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Opuntia polyacantha																		
M	'84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	5	14	0
	'01	2	-	-	-	-	-	-	-	-	-	2	-	-	40	3	6	2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'84			00%			00%			00%							
		'90			00%			00%			00%							
		'96			00%			00%			00%							
		'01			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'84		0	Dec:	-		
												'90		0		-		
												'96		0		-		
												'01		40		-		